HOW TO MAKE RECORDS AT HOME

WITH AN

EDISON PHONOGRAPH

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MAKING AMATEUR RECORDS ON THE EDISON PHONOGRAPH

MAKING Phonograph Records may properly be compared to amateur photography. The first efforts are disappointing. The first pictures made by the amateur are crude and unsatisfactory, and it requires time, care and study to produce good ones. In making Phonograph records the same care and persistence is necessary. The amateur should not set his standard too high. He should not think that he can make records equal to the Edison Gold Moulded Records now sold, for he will probably never be able to do so. It has taken years of study and experimentation on the part of Mr. Edison and scores of his assistants to produce records of this quality and volume.

When we state that with all their experience and facilities, our experts often find it necessary to make a dozen records to get one that is up to the high standard of Edison Gold Moulded Records, one can understand why our records are unequalled, and, also, why it is impossible for an inexperienced amateur, with but one recorder at his disposal, to secure the same results.

However, amateur records are not made for commercial purposes, but are justly valued because of the personal element that enters into their production. What does mother care if the record of baby's first words is not loud—it is her own dear child's voice which in after years will be priceless to her and to the grown child. Again, the record of a friend's singing or instrumental work may be technically faulty in reproduction, but is prized for its cherished associations.

After all, the wonder and pleasure of hearing one's own voice or music reproduced amply repays the amateur for the care and patience necessary in making records. And, by repeated trials, and careful attention to the instructions here given, results are sure to be achieved that will be eminently satisfactory.

Four Essentials for Record Making

I—THE PHONOGRAPH
II—THE RECORDER
III—THE HORN
IV—THE BLANK

The Phonograph

THE FIRST essential to record making is the ownership of an Edison Phonograph. One of the great advantages of the Edison Phonograph over all other makes of sound reproducing machines is the superior facilities it affords for the making of amateur records. Records may be made with any style Edison Phonograph. The Gem will *record* as well as the more expensive types, although the latter are more desirable because they run longer with a single winding and possess other advantages over the Gem.

The Recorder

THE SECOND requisite is a Recorder, which is included with the equipment of all Edison Phonographs except the Gem and Standard. It is sold separately, and owners of Gem and Standard Phonographs who lesire to make records must buy it as an extra. These recorders are constructed so as to get the best results for all kinds of record making. The Edison Laboratory experts, in order to get the best possible results, use many different recorders, each of which is best for certain kinds

of work. These vary chiefly in the kind and thickness of their diaphragms. In making master records one recorder after another is tried until one is found that gives the best results. It has been discovered that even two tenor voices will require different recorders, because one has some characteristic not found in the other. A recorder that takes a tenor voice will not do for a bass, and neither will do for a band, orchestra or instrumental solo. A violin will require one kind of diaphragm and a cornet another. This variation in recorders is one of the reasons for the superiority of Edison Records over all others and over any that can be made by the amateur. It is referred to here so that the reader may partly understand why he cannot equal the Edison product.

It is impossible for more than a few Phonograph owners to have a variety of recorders. Most of them can have but one, and that one must be so made as to be suitable for all classes of work. The Edison recorder does this in a marked degree. It is beyond question without an equal for the purpose. Those who get one with their Phonograph, or buy it specially, may feel assured of this.

The Horn

A THIRD requisite for home record making is a recording horn. The 10-inch or 14-inch horn with which Edison Phonographs are equipped may be used with success. Even fair results may be secured with longer horns having larger and wide flaring bells. Where the best reults are sought, however, it is advisable to get an Edison recording horn. This is made of tin. It is twenty-six inches long and made without a flare, tapering from six inches wide at the large opening to five-eighths of an inch at the small end. This horn is sold by dealers generally. Horns of this shape and general dimensions are used by

Edison experts. A substitute for this horn may be made of cardboard 1-32 inch in thickness and from twenty-six to thirty-six inches in length.

The Blank

THE FOURTH essential is a supply of Edison wax blanks. We say Edison blanks advisedly, for they are made of a superior composition and are chemically pure. They have no successful rival in the market. The ingredients that compose them are not unknown, but the secret of their chemical combination still remains with Mr. Edison. Other blanks made in imitation of his, and cast in the same form, lack the qualities essential for record making and other characteristics that give a record permanent value.

If the amateur is really desirous of making records successfully he should get at least a dozen blanks, although if he is close to a dealer's store where they can be shaved, he can get along with a smaller number. The amateur should buy them in no other way, for they are shaved by special machinery running at a high rate of speed and are absolutely accurate. If the amateur has a Triumph Phonograph and does his own shaving, after he has used all his blanks once, he should run his machine at the highest possible rate of speed and not cut too deep. Too deep a cut causes the wax to chip, leaving a broken, uneven surface on which a good record cannot be made. Shave several times in preference to one deep cut. Blanks cannot be properly shaved with any Phonograph except the Triumph. For this reason the shaving device is being left off of other types. Some Phonograph owners clean off blanks that have been used, with preparations of benzine. These obliterate the indentations on the blank, but leave a somewhat harsh surface, upon which it is difficult to make a smooth record. Preparations of this kind should not be used except when

a blank cannot be shaved in the usual way. The old style Edison wax records, no matter how old they are, may be shaved off, and they then make blanks equal to the best. All large Edison dealers have record shaving machines and will shave these old records at small expense.

How To Use Them

HAVING enumerated the articles needed for home record making, let us refer briefly to the manner of using them:

1. See that your Phonograph is in perfect running order; well oiled and free from dust; that it stands level; that it is fully wound; that the drive belt is not too loose; that the machine is running at 160 revolutions per minute (this may be determined by watching the small screw on the pulley and counting 40 revolutions to 15 seconds), and that the main shaft is not too tight between the centers. In a word, see that everything is running as smoothly as is required for good reproduction.

2. In handling the recorder do not let the sapphire point come in contact with hard surfaces, for unless this is kept in proper condition good records cannot be made no matter how skillful you may otherwise be.

3. Do not touch the surface of blanks with the fingers. Handle them by placing two fingers inside and spreading the fingers apart. If cotton or other substance gets on the blanks, brush them gently with the camel's hair brush that accompanies the Phonograph. Do not press too hard with the brush. The *ends* of the hairs should do the brushing, as they are the softest and will not scratch the record, as the sides of the hairs may do if pressed too hard against the record. Don't blow or breathe on the surface to remove these substances. Do not scratch the blanks, for scratches badly mar the reproduction.

There are a few general facts in connection with record making that should be first learned by the beginner.

Every record should be made with as much volume of sound as is possible with the individual or instrument, so long as it does not cause blasting. The singers or players should stand close enough to the horn to do this and yet far enough away to permit the horn to take in the different voices or instruments. A single singer or player should stand closer to the horn than two individuals; two closer than three, and so on. For the same reason a band or orchestra is placed farther away than a quartette.

Begin By Making Talking Records

THE AMATEUR will do well to begin by making talking records. These are the easiest to make, besides giving the beginner an opportunity to familiarize himself with the process of recording and the manipulation of the Phonograph while doing so. He will also be able to overcome some of the nervousness usually felt by the beginner. A talking record may be made with a horn, as already referred to, or with a mohair speaking tube. If the latter is used the wide opening should be placed within a half inch of the mouth.

Suppose, for example, you want to make a record of part of a famous speech or composition. You have made sure that your Phonograph is working properly and have placed a blank on the mandrel with sufficient firmness so that it will not slip. The horn is in position for recording but the speaker arm holding the recorder is up, the recorder not touching the blank. Read over your subject several times so as to get familiar with it. Stand in what you think is the proper position before the horn, start the machine, and, with-

out lowering the speaker arm, repeat aloud into the horn the announcement and part of the subject, talking about a minute. Then start the machine and, still without lowering the speaker arm, again go over your subject as before. Speak distinctly and in a good full voice, just as if you wanted an audience to hear every syllable of your remarks, even to the s's and t's. By this operation you will become accustomed to the sound of your own voice.

You are now ready for a real record. Repeat the operation just referred to, but just before you make the announcement lower the speaker arm so that the sapphire stylus will touch the record. Talk for a minute, as before, and if you are in doubt as to whether you have spoken distinctly and made a suitable record, remove the recorder and put back the reproducer. Remove shavings with the camel's hair brush, brushing to the right, *away* from the feed screw. Play over the record you have just made. Note carefully how distinctly your words were spoken and whether the record has as much volume as you want. Observe any other noticeable defects so that you may avoid them another time. With the experience thus far gained put back the recorder and repeat the same matter on the second half of the record. Play it over and see if you have made an improvement over the first half.

Next make another record of as much matter as will go on the full length of the blank. Play it over again and observe its defects. Be careful in these operations to use the reproducer and recorder properly, for, should you have the recorder on the Phonograph when you want to reproduce, your record will be spoiled.

Make several talking records before trying to make records of the voice or any instrument, for it will give you a knowledge of record making that will make it easier to do more difficult things later. Choose as a subject for a talking record something that can be rendered in about two minutes when speaking distinctly.

Vocal Records

HAVING been fairly successful in making talking records, you may now take up vocal records. It is better to make these without piano accompaniment at first in order to get familiar with the effects of the voice on the blank. Then, too, playing the accompaniment is in itself a task that requires special attention. Owing to the varying strength and different qualities of the human voice it is impossible to say just how far the singer should stand from the horn. The distance will vary from three inches to two feet. A good rule is to stand with the mouth very close to the horn and then observe the effect when the record is played over. If the voice blasts or is indistinct, stand a little farther back next time. In singing the high notes the singer should draw back slightly to prevent blasting. In all cases the singing should be as loud as the strength of the singer will permit. In no other way can a loud and clear record be made. The experience gained in making talking records will be found useful in making vocal records, and it will pay to follow the same method of making part of a record and playing it over to note the effects. Several vocal records should be made so as to become thoroughly familiar with the work.

Making Solo Records

THE manner of making solo records is practically the same whether the voice is soprano, contralto, tenor or bass, only varying the distance from the horn as the high notes are sung.

To make a vocal record with piano accompaniment, using an upright piano, requires a twenty-six to thirty-inch horn with a six-inch wide opening. The Phonograph should be placed with the horn pointing to the back of the piano, the latter being removed from

the wall for this purpose. The singer should stand between the horn and the piano, singing directly into the former. The horn should point to the *treble* section of the sounding board. If the singer is to stand upright then the piano should be placed on a platform about three feet from the floor, the Phonograph standing on an ordinary table. If it is too much trouble to elevate the piano, then the Phonograph may be placed

DIAGRAM SHOWING POSITIONS OF SINGER AND PIANO FOR MAKING SOLO RECORDS

on the floor, the vocalist sitting on a low stool. The object of this is to get the horn pointed to the proper part of the piano. The horn should be kept away from the *bass* section of the piano, for the bass notes confuse the record.

Should there be any loud or blasting spots in the record an inspection should be made to determine whether it is caused by the piano or the vocalist being too loud. If the fault is with the piano, the player should be requested to play softer, or the piano moved further back, or turned in such a way as to get less vibration from the loud notes. Should the voice appear to be too loud through the entire record, by sounding harsh, the singer should sing weaker or be placed farther away from the horn, usually the former, for generally when a vocalist sings too far away from the horn the tone is thin, and this is not desirable. If he is only harsh on certain notes, he should be requested to draw back when these are being sung. The piano player should be instructed to play with force and pre-

cision, but not to use either pedal. If the soft pedal is used it deadens the tone and will not be loud enough when reproduced; if the loud pedal is used it allows the tones of the piano to re-vibrate, and this vibration makes the piano notes sound as if they were mixed up.

If a square piano is used for accompaniment the cover should be raised to act as a sounding board and the horn should point toward the sounding board. The singer stands between the opening of the horn and piano, and sings straight into the horn.

An anvil effect can be secured for such songs as "The Armorer's Song" or "The Anvil Chorus" by holding a goblet near the mouth of the horn and striking its rim with a pencil or stick of wood. The goblet can be tuned to give forth the correct note, by putting water in it, the more water the higher the note.

If a guitar is used for accompaniment, hold it near the mouth of the horn and play as loudly and clearly as possible. An organ may be used for accompaniment, often with better results than a piano, as a reed tone usually reproduces better than a string tone.

Making Duet Records

DUET RECORDS with piano accompaniment are made in the same manner as solos, the singers simply standing a little farther away from the horn so as to permit the blend of their voices to enter the horn properly.

Quartette Records

QUARTETTE RECORDS are made by placing the tenors in the centre before the horn, with the basses on either side. They should stand as close together as possible. It is customary to place the bass and baritone close to horn, facing each other

and singing across the horn, the tenors standing between the basses and singing straight in the horn. When

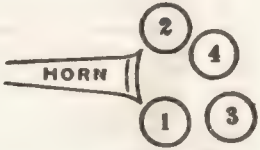

DIAGRAM SHOWING POSITIONS OF EACH SINGER WHEN MAKING A QUARTETTE RECORD

1. Bass
2. Baritone
3. First Tenor
4. Second Tenor

the quartette sings together, care should be taken that the voices blend and are well balanced. If one singer has a solo he should step forward in front of the horn, and when the quartette joins in he should fall back in his old position. It is very hard to determine the exact position for each singer until the voices have been heard, and it is always well to try them before making a record and note the volume of each voice. Then use your best judgment in placing them.

Band Records

IT REQUIRES much skill to make good band records. The methods employed by the Edison experts are given here for the general guidance of the amateur. The horn generally used is somewhat larger than that employed for other kinds of records. It is about forty-eight inches long and the large opening is eighteen inches in diameter.

DIAGRAM SHOWING POSITIONS OF EACH INSTRUMENT IN MAKING A BAND RECORD

1. Piccolo
2. Oboe
3. E flat Clarinet
4, 5, 7. Solo Clarinets.
6. 2d Clarinet
8. 3d Clarinet
9. 1st Clarinet
10. Baritone
11. Tuba
12. Drum
13,14,15. 1st, 2d & 3d Horns
16,20. 2d & 3d Cornets
17,18. Solo Cornets
19,21. 1st & 2d Trombones
22. Bass Trombone

The horn is placed in a horizontal position about four feet from the floor, and the bass instruments, such as the tubas, are placed at a distance of three to five feet from the horn, and altos about seven feet. The trombones about eight feet and raised about two feet from the floor so that they will focus the recording horn properly. Cornets are placed between the trombones, at a distance from eight to nine feet. The piccolos have a position between two and three feet from the horn, and the clarinets are raised two or three feet from the floor and lined up in two rows, one on each side of the horn, blowing across. The snare drums are placed two or three feet away and are never allowed to play except when they have a solo part. Bass drums and cymbals should never be used, as they have a tendency to fog the record.

After the artists are arranged in this position, a number of recorders are selected and the band is made to play a small part of the record to each one. The results are then carefully inspected and the best recorder selected. A record is then made the full length, and again carefully inspected and listened to, to see that the band is properly balanced. It is very important that one instrument shall not over-balance another. This is where experience in band recording is valuable.

For amateur work it is suggested that the same arrangement be followed. If it is impossible to elevate the men as described, the different relations of the instruments can usually be made by having the tubas and altos sit down, and the cornets, trombones and clarinets stand up.

Instrumental Solo Records

THE SAME apparatus can be used and the same methods followed for making cornet and trombone solos. In making cornet solo records place the instrument about eight feet from the horn and instruct the artist to use caution in playing high notes by turning his cornet to one side, pointing away from the horn. A cornet record to be perfect must have that peculiar brassy sound characteristic of the instrument, but not blare or blast. In making clarinet solo records a horn thirty inches long and having a six-inch large opening should be used. It should point upward and the clarinet point downward to the horn. The reproduction of the clarinet should contain the resonant and soft woody tone of this instrument, particularly in the low register. To make piccolo solo records place the piccolo in front of the horn with the player facing a little to one side, so as to have the mouth nearer to the horn and the end of the instrument farther away.

Should piano accompaniment be used when any or

these solos are made by the big horn, it is necessary to keep the piano at least four or five feet away. This can be determined after the first test.

Violin, String Orchestra, Banjo and Mandolin Records

WITH violin, string orchestra, banjo and mandolin records it is necessary, in order to obtain the best results, to elevate the Phonograph from five to six feet from the floor and have the horn, which should be the regular thirty-inch black and gold reproducing horn, pointing downward, focused to the F holes of the violin.

A string orchestra record should be taken in this position, but it is best to have the machine so that the horn points somewhat more horizontally, in order to focus the other instruments beside the violin.

The same method used to take violin records can be used for banjo and mandolin.

The violoncello is a difficult instrument from which to make a record. Place the Phonograph about three feet from the floor, with the horn pointing to the F holes of the instrument and just far enough away to leave room for proper bowing.